World weather in 2011

Description

As the Earth continues its never-ending journey around the Sun our weather never ceases in its desire to redistribute the sun's heat evenly across our planet. As it does so every year it can truly show us its raw power bringing floods, heatwaves, devastating winds, tornadoes and hurricanes and the year of 2011 was no different.

The year started with very heavy rain, flooding and landslides in parts of Australia, Brazil and much of Sri Lanka. Flooding was widespread across Queensland from end of December 2010 to **January** 2011 with several separate periods of heavy rain causing rivers to rise over many days. Many places, including Condamine and Chinchilla were inundated by flood waters on multiple occasions.

At the time Adam Sciafe, Head of Seasonal to Decadal Prediction at the Met Office, explained the link between these floods and La Niña.

The situation in western Australia did not get much better as Severe Tropical cyclone Yasi struck Queensland at the start of **February** bringing damaging winds in excess of 120mph and heavy rain to coastal and island communities between Cape Flattery and Prosperpine. Although Yasi came ashore north of where the worst of the recent flooding occurred, it was a large cyclone and so affected a wide area including some of the previously flooded regions. The very heavy rains continued as it moved inland towards central parts of Australia.

April saw the UK experience its warmest April on record with many parts having temperatures 3 to 5 °C warmer than normal. The UK average temperature was 10.7 °C exceeding the previous warmest April on record of 10.2 °C in 2007. Much of the country had a fine Easter weekend. It was also the warmest Spring on record for the UK with a mean temperature of 9.15C which beat the previous record of 9.05C in 2007.

In **May** the Missouri town of Joplin was ravaged by the worst tornado in 50 years. The tornado was the deadliest since 1953, and the second tornado disaster in the US in less than a month. The twister cut a six-mile swath through the centre of the town, wrecking churches, schools, businesses and homes. The town's fire department estimated that up to a third of buildings in the town were damaged or destroyed.

In **June** China evacuated more than 500,000 people from deadly floods that are devastating areas in the south of the country. This followed the worst drought in 50 years across the region. At least 105 people have been swept to their deaths or killed in landslides and another 65 were left missing after rivers burst their banks.

In **July** focus switched to the US as a swath of America from the Mexican border to Boston suffered under dangerously hot temperatures. The combination of high temperatures and excessive humidity triggered health warnings across the country.

This excessive heat was closely followed in **August** by Hurricane Irene, the first hurricane of this year's North Atlantic tropical storm season. Irene headed for the Bahamas and then moved in to the United States, making landfall over North Carolina before passing over New York City. Considerable damage occurred in eastern upstate New York and Vermont, which suffered from the worst flooding in centuries.

In **September** a deep area of low pressure which contained post-tropical storm Katia brought gales and heavy rain to parts of the UK. It is unusual for tropical storms to keep their tropical identity as they move across the colder waters of the Atlantic and this storm was the most powerful ex-hurricane to reach the UK since Hurricane Lili in 1996. Bob Wilderspin, Met Offfice Chief Forecaster explained the situation as the storm arrived in the UK.

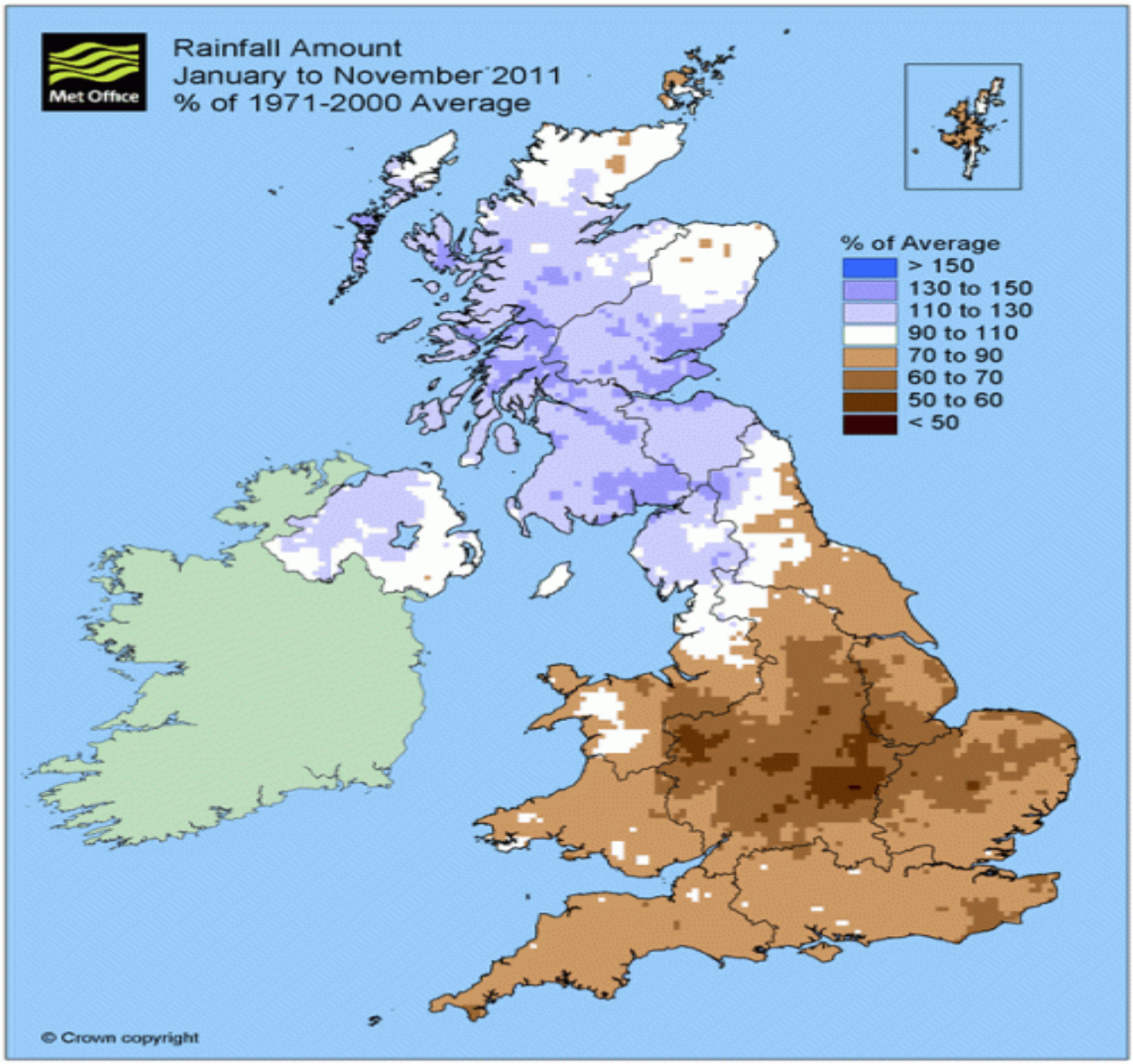
Tropical Cyclones continued to be the focus of our weather and at the end of September Typhoon Roke hit Japan's south-west coast and then moved north-east over Tokyo, to the region affected by the devastating earthquake and tsunami earlier in the year.

The end of September and the start of **October** saw a heatwave in the UK give record high temperatures. A new UK October record was set when temperatures peaked at 29.9 °C, at Gravesend in Kent, beating the previous record of 29.4 °C recorded in the village of March in Cambridgeshire, which had stood since 1 October 1985. Wales also has a new national record, 28.2 °C was recorded at Hawarden, Flintshire. The previous record was 26.4 °C recorded at Ruthin, Denbighshire, again on 1 October 1985.

The Philippines were battered by many typhoons this year. In October Typhoons Nesat and Nalgae struck the islands in just one week, bringing torrential rain and winds of up to 150mph.

Late October saw a snowstorm strike the US north-east causing unprecedented damage to woodlands and parks, with 1,500 trees lost in New York City alone. The storm, which broke record snowfall levels for October, left millions without power and 11 dead.

Across the UK there were some really big regional variations in rainfall this year, with parts of the Midlands and East Anglia seeing record or near record low amounts of rainfall during the Spring and in Autumn, while parts of Scotland had near record amounts of rainfall. The differences in rainfall across the UK can be clearly seen on the map below, and many parts of the southeast remained in drought in December.



Major floods occurred during the 2011 monsoon season in Thailand. Provinces in the Chao Phraya and Mekong River basin, including Bangkok and surrounding areas were most severely affected directly or indirectly by inundation. Flooding also affected most provinces in Thailand's south. Flooding began around July 2011, and continued into December 2011. Over 12.8 million people were affected and about six million hectares of land inundated with flood water.

November saw a powerful Bering Sea storm hit western Alaska with winds of up to 80mph – the strongest the state has seen in nearly 40 years. Meanwhile Ottawa, Canada, broke its record for the warmest November on record. The average maximum temperature was 9.9C, which is way above the usual maximum temperature of 4.8C in November. The previous warmest November was in 1948 where temperatures averaged 8.7C. The recent warmth resulted in Ottawa also breaking its record for the warmest autumn.

Typhoon Washi hit the southern Philippine island of Mindanao late in December causing flash floods and landslides which killed about 1,000 people and left tens of thousands homeless.

A severe storm affected the UK on **December** 8. Gusts of 165mph were recorded on Cairngorm summit during the storm. This is the highest recorded gust in the UK since 6 November 1996 when Cairngorm recorded 168 mph – and not far short of the UK record of 173 mph set here on 20 March 1986.

In stark contrast to last year the UK had a mild Christmas with a top temperature of 15.1 °C at Aberdeen on Christmas Day. This was only half a degree shy of the warmest Christmas Day on record – 15.6 °C at Leith in Scotland and Killerton, Devon in England. This compares to Christmas day last year where parts of Wales struggled to get any warmer than -7.6 °C – highlighting the differences that we can see in our weather from one year to the next.

Date Created
December 2011

Is it really that mild?

Description

Over the next few days we're expecting maximum temperatures of up to 13 deg C in places, with fairly widespread mild temperatures expected in most places both by day and night.

This is in stark contrast to this time last year when temperatures were well below average, with most places struggling to get above freezing during the day.

While there is a big difference from one year to the next, there is nothing unusual about the milder temperatures we're expecting over the next few days.

Although they are above the UK long-term average maximum temperatures for December of 6.9 deg C, it's still quite normal to see temperatures several degrees above that.

If we go back just three years to December 2008, we can see temperatures on the 21st of the month getting up to 14.5 deg C in Usk, Monmouthshire. Elsewhere, Edinburgh and Newcastle hit 13 deg C and London got up to 12.8 deg C.

There are many other incidences even in relatively recent years when temperatures have been equal or above those we expect this year – so there is certainly nothing exceptional in the forecast.

To give an idea of how warm it would have to be to break records, the warmest temperature ever recorded in December is 18.3 deg C at Achnashellach, Highland, on 2 December 1948. We're not expecting temperatures to get anywhere close to this in the next few days.

Even if we focus on Christmas Day, we're expecting temperatures of 10-12 deg C across the UK which is, again, nothing exceptional. The record for Christmas Day is 15.6 deg C at Killerton in Devon in 1920 and at Leith, Edinburgh in 1896.

Related articles

- UK weather forecast: Breeze from tropics takes the chill off Christmas (dailymail.co.uk)
- No White Xmas as UK turns 'tropical' (thesun.co.uk)
- Will it be warmest Christmas on record? Temperatures hit double figures across the country (dailymail.co.uk)

Date Created
December 2011

What a difference a year makes

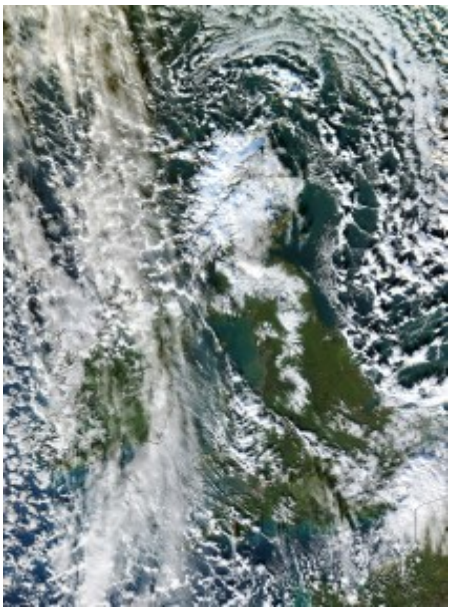
Description

Last year we had the coldest December in more than a century, with repeated heavy snowfalls and prolonged sub-zero temperatures.

This year has been a starkly different story, with conditions so far this month being much more normal for the time of year.

The huge difference from one year to the next is shown in the satellite images from NERC Satellite Receiving Station, Dundee University, Scotland. In 2010 the UK was blanketed with snow and ice, whereas this year only areas of high ground in Scotland, the Lake District and the Pennines show traces of white.

The UK covered in snow 24 December 2010



Relatively snow free UK 18 December 2011

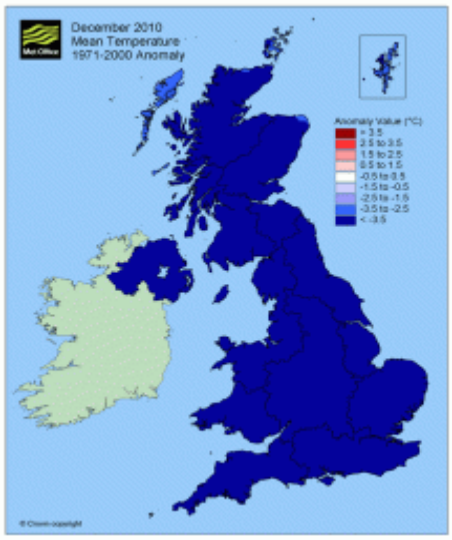
The main reason for the difference is down to the weather patterns seen last December compared to this year.

In December 2010 a high pressure system was sitting over the UK, blocking the normal westerly flow from the Atlantic and allowing easterly winds to bring in cold air from the continent.

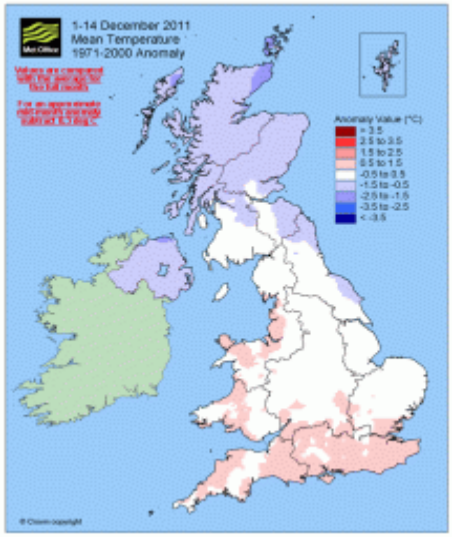
This year, the mild westerly has been unimpeded – allowing milder Atlantic air and changeable, often stormy, conditions to take charge.

December 2010 was the coldest on record for the UK, with temperatures 5 °C below the long term average, with -21.3 °C being recorded in Altnaharra in Scotland on 2 December. There were also 23 days of frost, 13 more than the average.

Temperatures so far this December have been notable only for being so average. UK mean temperatures for the first half of the month were spot on the long term average of 6.9 °C. The lowest temperature recorded so far this December is -9.4 °C, recorded at Loch Glascarnoch in Scotland on 18 December.



1 -31 December 2010 mean temperature



1-14 December 2011 mean temperature

The reason for these stark differences from one year to the next is down to natural variability in our weather – something we Brits are well used to and why we expect to see differences in our weather from one year to the next and even one day to another.
However, the challenge of forecasting our variable weather is something the Met Office rises to every day and explains why we are regularly ranked in the top two national weather services in the world.

We are also continuing our improve our expertise through scientific research to look at how certain cycles or indicators in global climate, such as El Niño, work together to drive weather patterns over the UK.

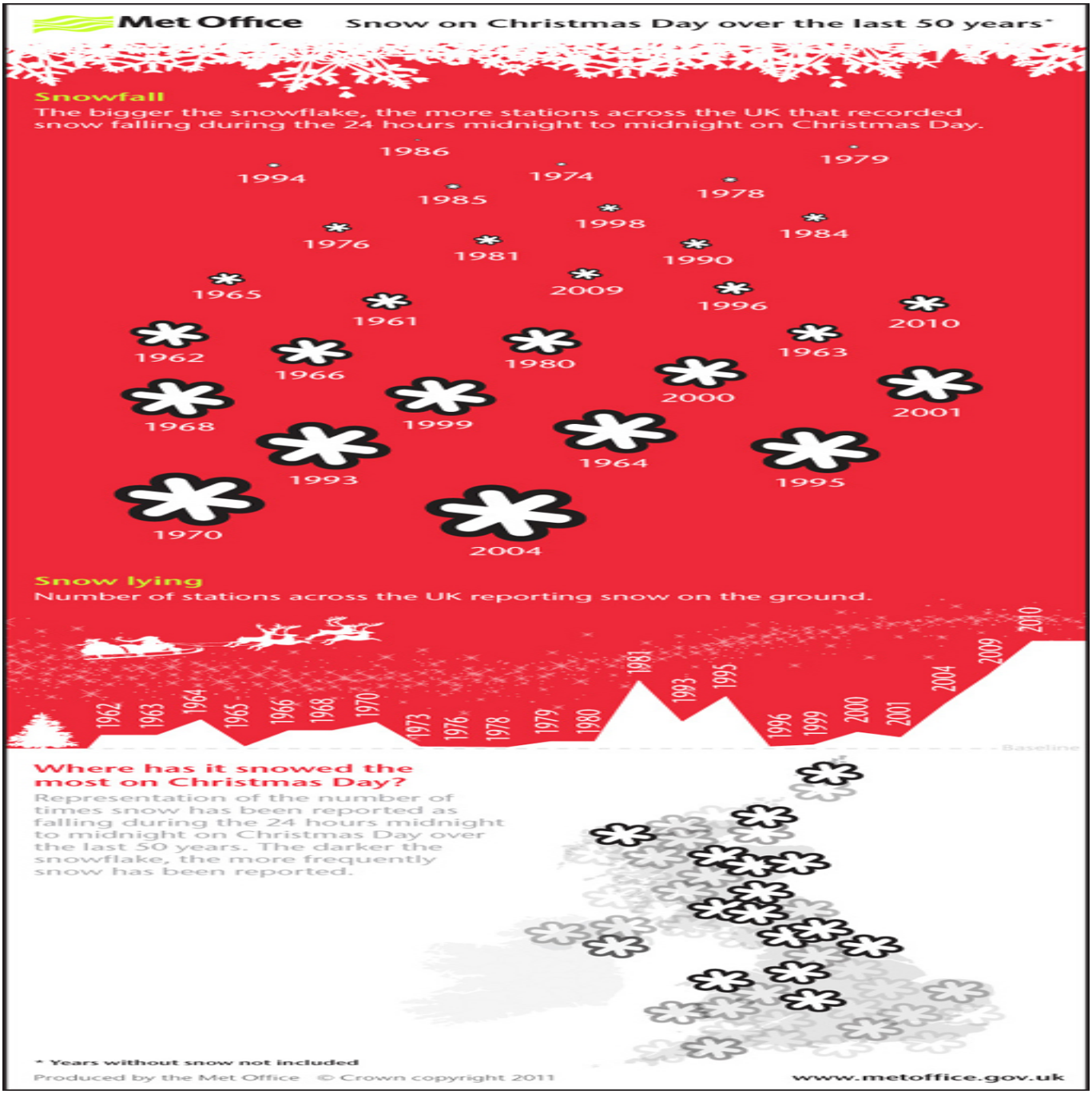
To keep up to date with what we're expecting for the rest 2011 and into 2012, you can check our forecasts which look out to 30 days ahead.

Date Created
December 2011

Infographic: How often has it been a white Christmas

Description

It [may not look like it will snow at Christmas this year](), but we've taken a look back at how often we've seen snow fall or snow on the ground on Christmas Day over the past 50 years.



For more information on snow at Christmas, take a look at our white Christmas page.

Date Created
December 2011

Met Office in the Media: 15 December 2011

Description

The windy and wintry weather forecast for the Met Office through this week is dominating coverage at the moment. The Daily Mail reported 'Snow reaches the south' using our video to support their story. Similar stories also ran in the Telegraph, Express, The Sun and Huffington Post.

Image representing Google Search as depicted i...

Image not found or type unknown

The Times reported on the most popular Google search terms revealing that 'Met Office' was the most popular search term in the UK this December – highlighting people's interest in the weather and more importantly that people turn to the Met Office when it really matters.

In a quirky weather story The Mirror reported on a 'freak storm of apples'. Although we are unable to verify this phenomenon it certainly isn't the first time that things, such as frogs, fish and apples have fallen from the sky. It is possible that when there are heavy showers around a tornado could lift apples from the ground and then drop them in a different place. Sometimes our weather can really be quite strange!

Date Created
December 2011

Communicating uncertain forecasts

This has been a challenging week for the Met Office. As early as last weekend our forecasters identified the potential for some very severe weather to affect the UK at the end of this week. Our forecasting systems had identified a possible area of significant development, which if this were to happen would result in a rapidly deepening, vigorous low pressure system running across the UK bringing with it storm force winds and the potential for widespread disruption to travel as well as the possibility for structural damage and uprooted trees.

Although we were quite sure this low would cross the UK at the end of the week, there was also the potential it may not develop and consequently cross to the south of the UK and instead of stormy winds, bring the risk of heavy rain and snow fall.

And here is where the challenge began. When the weather is not feeling too predictable how do we make sure we give sufficient warning to people, when the impact of such weather could be so high but the probability of it happening is relatively low?

Right from the beginning of the week our forecasters and advisers have briefed local and national governments and resilience communities on the risks associated with the developing weather situation so that they are fully aware of the potential for this storm. We worked hard to show the range of uncertainty in the predictability of the weather and then honed in on the detail as it became clearer through the week. This is what the Met Office does best and we have had some very positive feedback.

Our television forecasters at the BBC and ITV, have kept the public right up to date with the latest details of the forecast from the Met Office. The BBC forecast went as far as showing alternative possible forecasts on Tuesday evening highlighting the possible impacts the weather may bring at the

end of the week. These forecasts have been extremely well received by those who saw them and, along with a range of videos on the Met Office website with our Chief Forecasters have kept everyone well-informed on what could be expected.

Our latest forecasts show that the low will track to the south of the UK, with the strongest winds confined to the English Channel and across the near continent. The Met Office has been liaising with MeteoFrance, our counterparts in France, on the severe weather now expected there.

Having said that, it will still be windy along parts of the south coast and our attention for the UK turns to the risk of heavy rain and snow. Warnings have been issued to the public and the resilience community with the potential for heavy rain in southern most counties of England and snow in parts of Wales, the Midland and southern and southeast England through Friday morning.

We continue to show in our forecasts the most likely outcome as well as and what the weather might be like if the low were to push a little further north. Some may say this is just “sitting on the fence” but what this actually shows is how challenging it is to forecast the weather is the UK, and how good forecasts and targeted information can allow people to make the right decisions based on the best information when it really matters.

Related articles

- UK weather: The big freeze set to last all weekend and another 70mph storm is … – Daily Mail (dailymail.co.uk)
- Snow and high winds to hit Britain (mirror.co.uk)
- You: Weather warning as high winds, rain and snow set to batter Britain (guardian.co.uk)
- Weather warning: Snow forecast in Wales on Friday – BBC News (bbc.co.uk)

Date Created
December 2011

Met Office in the Media: 09 December 2011

Description

The severe weather that affected much of the north of the UK over the last day or so has just shown how important accurate weather forecasts are in keeping people safe and well. Our forecasts were in deed very accurate and last night Deputy First Minister, Nicola Sturgeon said: “The conditions are exactly as predicted when the Met Office issued its red warning.”

Equally important however is clearly communicating our weather forecasts to make sure that the nation knows where and when severe weather will hit and then what the impacts may be. We work with agencies, such as local and national governments, the police and fire service as well as emergency planners to make sure they clearly know what the weather has in store, but we still need to keep the public informed.

We best do this with our partners at the BBC and ITV, where our weather forecasts reach many millions of people every day. These forecasts over the last few days have been extremely clear, accurate and informative, ensuring we all knew what to expect. Similarly working with national and local newspapers and radio stations across the land the nation was prepared for severe weather when it really mattered.

Related articles

- Met Office issues highest warning alert as central Scotland braces itself for 100mph gales (Daily Record)
- Met Office puts Scotland on Red Alert for severe gales (The Courier)
- Snow and Ice cause problems as storm hits Scotland (STV)
- Scottish schools in storm shut-down (Scottish Daily Express)
- High winds followed by snow (Scotsman)
- Scottish travel alert after red warning (BBC)
- Winter blows in at 100mph (Daily Mail)
- 100mph gales set to batter Britain (Daily Express)
- Britain braced for 100mph winds (Channel 4 News)
- School closures in Scotland as 100mph gales batter Britain (Guardian)

Date Created
December 2011

A golden conundrum

Description

Precipitation doesn't just mean rain

Tonight the Met Office is to receive a Golden Bull award for using the phrase ‘probability of precipitation’ in forecasts on our new website. The Plain English Campaign, who judge the awards, say it’s poor communication and have questioned why we don’t just say a ‘chance of rain’ instead. It’s a fair point to raise as we’re always looking at the best way of communicating our forecasts, but the answer is straightforward – weather isn’t as simple as we’d like it to be and precipitation is a prime example.

Precipitation is a word used for any water that comes out of the sky – it includes rain, drizzle, hail, sleet, snow and even a few other less common weather features like diamond-dust, snow grains and graupel. It’s a catch-all term that’s really useful for meteorologists and it’s used by other forecasters around the world, such as in the USA and Canada – but apparently it’s a word that’s not very appealing to some others.

The difficulty is that when water does come out of the sky, it can fall in different forms from one place to another. The same weather system could produce snow, sleet and rain across even quite a relatively small area. For that reason, we can’t just say what the ‘chance of rain’ is because it could be misleading. So we need to find a way of getting that complexity across in a simple way. We could put ‘chance of rain, hail, sleet and snow’, but it’s a bit of a mouthful, or maybe ‘chance of water coming out of the sky’?

We’re keen to hear if anyone has ideas about a better way to say it? Let us know on our Facebook page

or you can find out more about the science of probability of precipitation.

Related articles

- Met Office ‘gobbledygook’ awarded (bbc.co.uk)

Date Created
December 2011

Met Office researchers fly into the violent Atlantic storm affecting Scotland

Description

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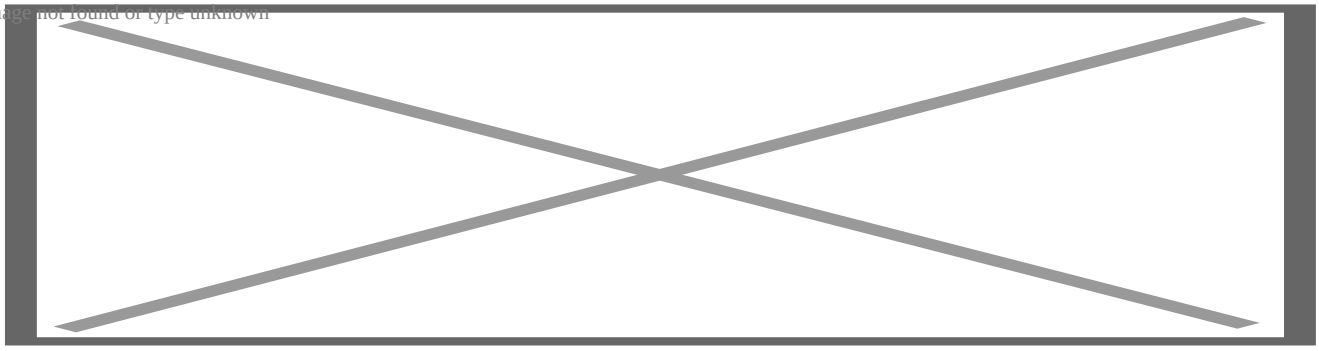

Today’s violent storm in Scotland is a reminder of the enormous impact that weather can have on our lives, and of the paramount need for accurate forecasts of high winds.

To help improve future forecasts, scientists from the UK academic community and the Met Office are using the Facility for Airborne Atmospheric measurements (FAAM) research aircraft to probe this storm, using specialist instruments to measure the winds, temperature and humidity, and cloud particles.

The aircraft is also able to drop small instrument packages through the storm to measure profiles of wind, temperature and humidity. The data from these instruments was relayed back to Exeter by satellite link and used in producing the next forecast. Today it flew from Exeter north to Stornoway before sampling the south-west region of the storm, west of Scotland. Then after refuelling in Tees-side it measured the storm again over Eastern Scotland.

The flights are being conducted as part of DIAMET, a joint project between the National Centre for Atmospheric Sciences, Natural Environment Research Council and the Met Office as part of our programme of continually improving our ability to forecast high-impact weather.

Larger-scale storm systems that may be forecast well, typically contain localised regions of particularly severe weather, that are much harder to forecast accurately. These smaller regions, where much of the storm damage is often concentrated, are much more difficult to forecast than the storm itself, especially more than a day ahead. Our study of today’s storm will be a major opportunity to improve such forecasts.

A selection of some of the highest winds recorded around the UK on Thursday are:

Cairngorm Summit: 165 mph

Aonach Mor: 145 mph

Tiree: 90 mph

Dunstaffnage: 86 mph

Aberdaron: 81 mph

Church Fenton: 73 mph

Edinburgh, Gogarbank: 69 mph

St Bees Head: 74 mph

Mumbles Head: 62 mph

Date Created
December 2011

Climate change and extreme weather

Description

As the first week of COP17 in Durban draws to a close Peter Stott, Head of Climate Monitoring and Attribution at the Met Office Hadley Centre was interviewed by OneWorld TV about how our climate is changing today and what this means for the risks of extreme weather around the world.

The Met Office is at the UN Climate Change Conference supporting the UK Department for Energy and Climate Change in it’s negotiations on behalf of the UK. This means that we provide independent scientific advice on which sound negotiations can be based.

Whilst here at COP17, our scientists have also been working with the UN World Food Programme exploring food security issues in Africa today and in the future. Our scientists have also been speaking with other African scientists about the science of climate change for their own countries and how we can work together on issues such as understanding regional climate change, regional climate modelling and developing robust long-range forecasts on which many people in these countries rely.

Date Created
December 2011

Met Office forecaster supports troops with more than just the forecast

Description

Met Office Weather Forecaster and RAF Reservist, Sqn Ldr Ken Horn made 902 Expeditionary Air Wing history today by cycling a massive 1900km during his three month tour of duty in the Middle East.

The 54 year old Meteorologist, who is often spotted cycling around the Airbase, finished his challenge only a few hours before catching his departing flight home to the UK.

His record breaking prowess is not limited to cycling; having just completed his 63rd deployment (excluding exercises) and been awarded 11 military medals, Sqn Ldr Horn has a wealth of operational experience in locations including Afghanistan, the Balkans and Iraq.

902 EAW has a permanent team of meteorologists from the Met Office Mobile Met Unit who are vital in the accurate forecasting and monitoring of weather conditions for the VC-10, Merlin and Sentinel Force elements operating in support of Op KIPION and Op HERRICK. The local landscape and sudden weather fronts locally mean Sqn Ldr Horns leadership is even more important than ever.

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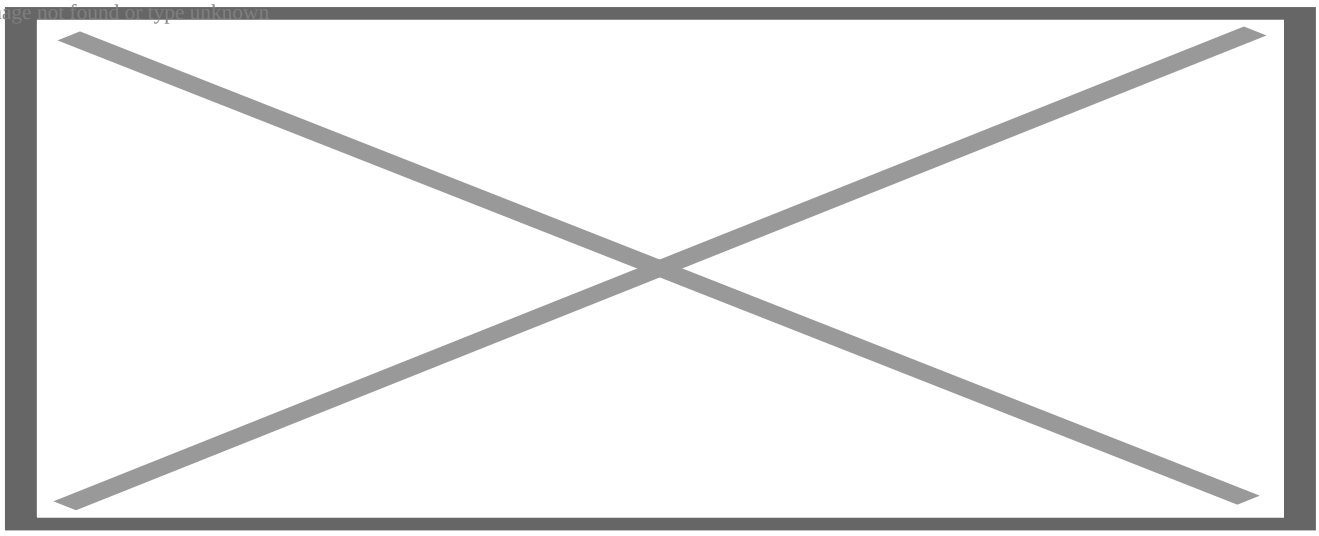

Sqn Ldr Horn was presented with a certificate by Wg Cdr Blackburn, CO 902 EAW today, to mark not only his outstanding achievement on the road, but also his contributions to 902 EAW's air operations. Wg Cdr Blackburn said "As a trusted and valued Officer, Sqn Ldr Horn is an unsung hero, critical in what we do; we simply could not have delivered our mission without his efforts".

The full article "902 EAW Met Man Covers 19OOkm" is published on RAF News

Date Created
December 2011

Active hurricane season comes to an end

Description

After seven hurricanes and 12 other named storms causing several billion dollars of damage, the 2011 North Atlantic hurricane season has now officially come to an end.

It has been an unusual season in many respects. Firstly, the 19 named storms marks the joint second highest number based on records since 1944*. The average is about 11.

The season has also been characterised by a high number of relatively short-lived storms – with seven of the 12 tropical storms lasting just two days or less. None of the first eight storms of the season developed into hurricanes – something unprecedented in the records.

Joanne Camp, a long-range hurricane forecaster at the Met Office, explained that having so many short-lived and relatively weak tropical storms was a notable feature of the season: “If you look at the long-term record, this is unusual – but it has been an increasing trend over recent years.

“This is almost certainly due to the improvement of technology, such as satellites, which allows us to observe developments over the North Atlantic in ever greater detail. This means we are now identifying storms that could previously have gone undetected.”

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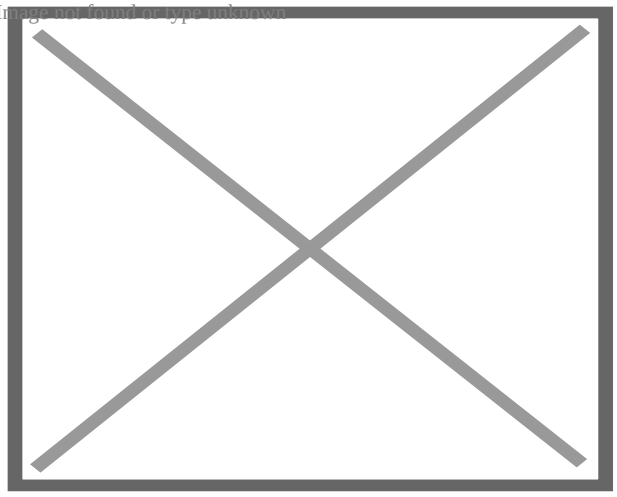

Satellite image of Hurricane Irene (NASA)

Many storms – but not much power

Because such a large proportion of this season’s storms were short-lived and weak, the Accumulated Cyclone Energy (ACE) index (measuring the combined strength and duration of all the storms in the season) was only moderately above average at 124 – the average is about 101. Many seasons in the historical record have had a much lower total tropical storm count, but much higher ACE index.

The Met Office public forecast for the North Atlantic hurricane season, which is issued in May,

continued its run of providing good guidance on the ACE index – with this year's actual total well within the predicted range. On the number of storms, the total of 19 this year is outside of the forecast range for the first time in five years.

In terms of the storms which developed into hurricanes, two were notable this year. Irene was the first hurricane to make landfall in the US in three years. Interestingly, no major hurricane (those registering category 3-5 on the Saffir-Simpson hurricane wind scale) has made landfall in the US since Wilma in 2005 – a near-record amount of time.

Katia also made headlines this year – but this time in the UK. The Met Office's early forecasts of the hurricane's track after it became post-tropical highlighted its course across the Atlantic, leading to weather warnings of strong winds and heavy rain for the UK several days in advance.

When Katia arrived as a post-tropical storm, gusts of up to 98 mph were recorded as the northern half of the UK bore the brunt of the storm. Katia was the strongest ex-hurricane to make landfall in the UK since Lili in 1996.

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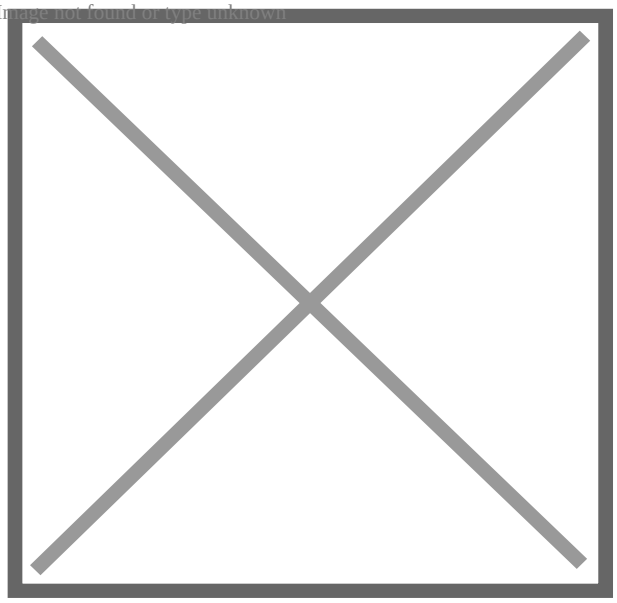

Post tropical storm Katia Photo: EUMETSAT/Met Office

Longer-term trends

Overall the relatively high amount of Atlantic hurricane activity continues a trend which started in 1995, with most years since then being above-average. To assess long-term cycles in North Atlantic hurricane activity the Met Office is trialling experimental forecasts for up to 5 years ahead. This work garnered the Lloyd's Science of Risk prize in 2010.

While this research continues, the Met Office's hurricane experts will be keeping a close eye on the drivers of tropical storm activity over the next few months as they prepare the first forecast for next year's season, which will be issued in March 2012. The main public forecast will be released in May 2012.

A verification report for this year's Met Office Seasonal Tropical Storm Forecast for the North Atlantic is now available online.

For regular updates on tropical cyclones worldwide follow @metofficestorms on Twitter.

* All references to records refer to data going back go 1944. Records going back to other dates are used in the verification report.

Date Created
December 2011